

N O T I C E

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INFORMATION AS POSSIBLE

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Crossref for the Cray

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Section 1

INTRODUCTION

1.1 PURPOSE

CROSSREF is a tool to assist a user in obtaining information about the contents of a library which was generated with a BUILD statement on the CRAY Computer under the CRAY OPERATING SYSTEM (COS). It develops several alphabetized listings and tables which yield information about each member of a library. It also produces statistics about the library.

1.2 FEATURES

CROSSREF produces the following:

1. List of all modules contained within a library.
2. Summary table by modules containing module size, module ENTRY POINTS, referenced COMMONS and required EXTERNALS.
3. List of all ENTRY POINTS.
4. List of UNSATISFIED EXTERNALS.
5. Summary table of ENTRY POINTS and optionally EXTERNALS.
6. List of COMMONS.
7. Summary table of COMMONS.
8. Table of Statistics
9. Table of Contents
10. Optionally allows output to be formatted to 8 1/2 inch vertical printer paper or CRT display.

Section 2

INPUT AND OUTPUT

2.1 INPUT DATA STRUCTURE

The input data is the last record of a library file which was generated by COS when the library was generated with a BUILD statement in the CRAY's JCL. The user has no control over this last record but will ACCESS it as shown in the Usage section of this document. For more information regarding this record see CRAY document COS Table Description (Internal Reference Manual SM-0045 under the loader directory table "DFT").

2.2 OUTPUT FILE STRUCTURE

Printed lists and tables are the only forms of output from this program. It requires an output device which is capable of 132 print positions unless the option for a CRT is used.

Section 3

LIMITATIONS AND TIMING

3.1 LIMITATIONS OF TABLES

CROSSREF has the following limitations of its internal tables:

Maximum of 4096 modules per library.

Maximum of 4096 ENTRY POINTS and/or EXTERNALS per library.

Maximum of 4096 COMMONS per library.

Maximum of 1024 ENTRY POINTS and/or EXTERNALS per module.

Maximum of 1024 COMMONS per module.

3.2 TIMING CONSIDERATIONS

No absolute benchmarks for timing of CROSSREF have been established. However, using the CRAY default of eight seconds should under normal conditions, be more than adequate for most libraries.

Section 4

USAGE

4.1 OPTIONS

CROSSREF normally defaults to format its output on eleven (11) inch vertical paper of sixty one (61) lines and 132 characters wide. Also, it defaults to exclude CRAY systems EXTERNALS in its lists and summaries (i.e., modules with special characters in the name).

The above defaults can be overridden by setting sense switches. They are:

SWITCH 1 ON to include CRAY systems EXTERNALS.

SWITCH 2 ON to format the output for eight and one half (8 1/2) inch vertical paper of fifty one (51) lines and 132 characters wide.

SWITCH 3 ON to format the output to a CRT. (80 characters wide by 24 lines vertical).

4.2 EXAMPLES OF JOB CONTROL LANGUAGE

In the following examples:

eof - Cards use 7/8/9 in column one.

Mercury or Jupiter VAX use /EOF.

VAX's except Jupiter or Mercury use %%EOR.

eoi - Cards use 6/7/8/9 in column one.

Mercury or Jupiter VAX use /EOF.

VAX's except Jupiter Mercury use %%EOF.

Example A:

To list information contained within a library and accepting CROSSREF's defaults.

```
JOB,JN=jobname,US=user,PW=password.  
ACCOUNT,AC=user account.  
ACCESS, DN=XREF, PDN=CROSSREF, ID=SOFTLIB.  
ACCESS, DN=LIBN, PDN=name of library, ID=user id.  
SKIPD, DN=LIBN.  
SKIPP, DN=LIBN, NF=-1.  
COPYF, I=LIBN, O=TAPE1.  
REWIND, DN=TAPE1.  
ASSIGN, DN=TAPE1, A=FT01.  
LDR, DN=XREF.  
eod  
eci
```

Example B:

To list information contained within a library fromatted for 8 1/2 inch vertical output and with systems EXTERNALS.

```
JOB,JN=jobname,US=user,PW=password.  
ACCOUNT,AC=user account.  
ACCESS, DN=XREF, PDN=CROSSREF, ID=SOFTLIB.  
SWITCH, 1=ON.  
SWITCH, 2=ON.  
ACCESS, DN=LIBN, PDN=name of library, ID=user id.  
SKIPD, DN=LIBN.  
SKIPP, DN=LIBN, NF=-1.  
COPYF, I=LIBN, O=TAPE1.  
REWIND, DN=TAPE1.  
ASSIGN, DN=TAPE1, A=FT01.  
LDR, DN=XREF.  
eod  
eci
```

Section 5

ERROR MESSAGES

All error messages appear in the CRAY systems logfile. When an error is encountered, the job aborts.

ERROR WRONG TYPE INPUT

Will be displayed when a library file was not ACCESSed, positioned with SKIPF, SKIPD and COPYF, or ASSIGNED correctly. See the JCL section.

All other error messages are of the form:

XXX
TABLE OVERFLOW

Where XXX is the table which exceeded the limits stated in the Limitation section.

A

SAMPLE PRINTOUT FOR 11 1/2" paper

Printout from CROSSREF when set up for eleven inch
printer stock and set up to include systems routines.

DATE 05/02/05

VINE 07-38-43

LIBRARY CROSS REFERENCE SYSTEM LIBRARY CROSS REFERENCE SYSTEM LIBRARY CROSS REFERENCE SYSTEM LIBRARY CROSS REFERENCE SYSTEM

St. Paul Train
St. Paul Train
St. Paul Train

STARTMAN

START/PLAN

STARTUP STARTUP STARTUP STARTUP

STARTUP

SANTINUM

ARTICLE
ARTICLE

LIBRARY CROSS REFERENCE SYSTEM LIBRARY CROSS REFERENCE SYSTEM LIBRARY CROSS REFERENCE SYSTEM LIBRARY CROSS REFERENCE SYSTEM

DATE 05/22/85 TIME 07:30:43

GENERAL INFORMATION

SEE LAST PAGE FOR TABLE OF CONTENTS.

SEE DAYFILE FOR NAME OF LIBRARY SELECTED.
I.E. ATTACH, TAPE1, XXXXXX, ETC.

OR
SEE LOGFILE FOR NAME OF LIBRARY SELECTED.
I.E. ACCESS, DM=XXXXXX, PDN=ZZZZZZ, ETC.

ALL NUMERIC VALUES ARE RADIX TEN (10).

UNLABELED COPIES IS DENOTED BY TWO SLASHES (//).

SYSTEMS EXTERNAL WITH SPECIAL CHARACTERS WILL BE EXCLUDED.

DEFAULT PRINTER STOCK SIZE IS 11 INCH.

- •
- THE LIBRARY CROSS REFERENCE SYSTEM WAS DEVELOPED FOR THE
- NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) AT
- AMES RESEARCH CENTER, MOFFETT FIELD, CALIFORNIA 94035.
- UNDER CONTRACT NUMBER: NAS2-9891.
- CRAY VERSION 1.0 RELEASE DATE: JUNE 1984
- •

PAGE 1 DATE 05/02/85 LIBRARY CROSS REFERENCE TIME 07:56:43

* * * * * THE FOLLOWING MODULES ARE MEMBERS OF THE SELECTED LIBRARY * * * * *

MOD NAME	FUNCTION								
CFAA	SYMB14	SYMB15	SYMB16	SYMB17	SYMB18	SYMB19	SYMB20	SYMB21	SYMB22
DPTRN	SUBT13	SUBT14	SUBT15	SUBT16	SUBT17	SUBT18	SUBT19	SUBT20	SUBT21
ETOM1	SUBT11	SUBT12	SUBT13	SUBT14	SUBT15	SUBT16	SUBT17	SUBT18	SUBT19
ETOM2	SUBT12	SUBT13	SUBT14	SUBT15	SUBT16	SUBT17	SUBT18	SUBT19	SUBT20

* * * * * SUMMARY BY MODULES * * * * *

ATTRIBUTES

MODULE	78-LLENGTH								
CFAA	1 ENTRY POINT								
DPTRN	SAME AS MODULE								
ETOM1	SUBT11	SUBT12	SUBT13	SUBT14	SUBT15	SUBT16	SUBT17	SUBT18	SUBT19
ETOM2	SUBT12	SUBT13	SUBT14	SUBT15	SUBT16	SUBT17	SUBT18	SUBT19	SUBT20
FUNCTION	02-LLENGTH								
FUNCTION	1 ENTRY POINT								
FUNCTION	SAME AS MODULE								
FUNCTION	154-LLENGTH								
FUNCTION	1 ENTRY POINT								
FUNCTION	SAME AS MODULE								
FUNCTION	1 EXTERNAL								
FUNCTION	78-LLENGTH								
FUNCTION	1 ENTRY POINT								
FUNCTION	SAME AS MODULE								
SUBT1	518-LLENGTH								
SUBT1	11 ENTRY POINTS								
SUBT1	ENTRY1	ENTRY2	ENTRY3	ENTRY4	ENTRY5	ENTRY6	ENTRY7	ENTRY8	ENTRY9
SUBT1	ENTRY10	ENTRY11	ENTRY12	ENTRY13	ENTRY14	ENTRY15	ENTRY16	ENTRY17	ENTRY18
SUBT1	ENTRY19	ENTRY20	ENTRY21	ENTRY22	ENTRY23	ENTRY24	ENTRY25	ENTRY26	ENTRY27
SUBT1	ENTRY28	ENTRY29	ENTRY30	ENTRY31	ENTRY32	ENTRY33	ENTRY34	ENTRY35	ENTRY36
SUBT1	ENTRY37	ENTRY38	ENTRY39	ENTRY40	ENTRY41	ENTRY42	ENTRY43	ENTRY44	ENTRY45
SUBT1	ENTRY46	ENTRY47	ENTRY48	ENTRY49	ENTRY50	ENTRY51	ENTRY52	ENTRY53	ENTRY54
SUBT1	ENTRY55	ENTRY56	ENTRY57	ENTRY58	ENTRY59	ENTRY60	ENTRY61	ENTRY62	ENTRY63
SUBT1	ENTRY64	ENTRY65	ENTRY66	ENTRY67	ENTRY68	ENTRY69	ENTRY70	ENTRY71	ENTRY72
SUBT1	ENTRY73	ENTRY74	ENTRY75	ENTRY76	ENTRY77	ENTRY78	ENTRY79	ENTRY80	ENTRY81
SUBT1	ENTRY82	ENTRY83	ENTRY84	ENTRY85	ENTRY86	ENTRY87	ENTRY88	ENTRY89	ENTRY90
SUBT1	ENTRY91	ENTRY92	ENTRY93	ENTRY94	ENTRY95	ENTRY96	ENTRY97	ENTRY98	ENTRY99
SUBT1	ENTRY100	ENTRY101	ENTRY102	ENTRY103	ENTRY104	ENTRY105	ENTRY106	ENTRY107	ENTRY108
SUBT1	ENTRY109	ENTRY110	ENTRY111	ENTRY112	ENTRY113	ENTRY114	ENTRY115	ENTRY116	ENTRY117
SUBT1	ENTRY118	ENTRY119	ENTRY120	ENTRY121	ENTRY122	ENTRY123	ENTRY124	ENTRY125	ENTRY126
SUBT1	ENTRY127	ENTRY128	ENTRY129	ENTRY130	ENTRY131	ENTRY132	ENTRY133	ENTRY134	ENTRY135
SUBT1	ENTRY136	ENTRY137	ENTRY138	ENTRY139	ENTRY140	ENTRY141	ENTRY142	ENTRY143	ENTRY144
SUBT1	ENTRY145	ENTRY146	ENTRY147	ENTRY148	ENTRY149	ENTRY150	ENTRY151	ENTRY152	ENTRY153
SUBT1	ENTRY154	ENTRY155	ENTRY156	ENTRY157	ENTRY158	ENTRY159	ENTRY160	ENTRY161	ENTRY162
SUBT1	ENTRY163	ENTRY164	ENTRY165	ENTRY166	ENTRY167	ENTRY168	ENTRY169	ENTRY170	ENTRY171
SUBT1	ENTRY172	ENTRY173	ENTRY174	ENTRY175	ENTRY176	ENTRY177	ENTRY178	ENTRY179	ENTRY180
SUBT1	ENTRY181	ENTRY182	ENTRY183	ENTRY184	ENTRY185	ENTRY186	ENTRY187	ENTRY188	ENTRY189
SUBT1	ENTRY190	ENTRY191	ENTRY192	ENTRY193	ENTRY194	ENTRY195	ENTRY196	ENTRY197	ENTRY198
SUBT1	ENTRY199	ENTRY200	ENTRY201	ENTRY202	ENTRY203	ENTRY204	ENTRY205	ENTRY206	ENTRY207
SUBT1	ENTRY208	ENTRY209	ENTRY210	ENTRY211	ENTRY212	ENTRY213	ENTRY214	ENTRY215	ENTRY216
SUBT1	ENTRY217	ENTRY218	ENTRY219	ENTRY220	ENTRY221	ENTRY222	ENTRY223	ENTRY224	ENTRY225
SUBT1	ENTRY226	ENTRY227	ENTRY228	ENTRY229	ENTRY230	ENTRY231	ENTRY232	ENTRY233	ENTRY234
SUBT1	ENTRY235	ENTRY236	ENTRY237	ENTRY238	ENTRY239	ENTRY240	ENTRY241	ENTRY242	ENTRY243
SUBT1	ENTRY244	ENTRY245	ENTRY246	ENTRY247	ENTRY248	ENTRY249	ENTRY250	ENTRY251	ENTRY252
SUBT1	ENTRY253	ENTRY254	ENTRY255	ENTRY256	ENTRY257	ENTRY258	ENTRY259	ENTRY260	ENTRY261
SUBT1	ENTRY262	ENTRY263	ENTRY264	ENTRY265	ENTRY266	ENTRY267	ENTRY268	ENTRY269	ENTRY270
SUBT1	ENTRY271	ENTRY272	ENTRY273	ENTRY274	ENTRY275	ENTRY276	ENTRY277	ENTRY278	ENTRY279
SUBT1	ENTRY280	ENTRY281	ENTRY282	ENTRY283	ENTRY284	ENTRY285	ENTRY286	ENTRY287	ENTRY288
SUBT1	ENTRY289	ENTRY290	ENTRY291	ENTRY292	ENTRY293	ENTRY294	ENTRY295	ENTRY296	ENTRY297
SUBT1	ENTRY298	ENTRY299	ENTRY300	ENTRY301	ENTRY302	ENTRY303	ENTRY304	ENTRY305	ENTRY306
SUBT1	ENTRY307	ENTRY308	ENTRY309	ENTRY310	ENTRY311	ENTRY312	ENTRY313	ENTRY314	ENTRY315
SUBT1	ENTRY316	ENTRY317	ENTRY318	ENTRY319	ENTRY320	ENTRY321	ENTRY322	ENTRY323	ENTRY324
SUBT1	ENTRY325	ENTRY326	ENTRY327	ENTRY328	ENTRY329	ENTRY330	ENTRY331	ENTRY332	ENTRY333
SUBT1	ENTRY334	ENTRY335	ENTRY336	ENTRY337	ENTRY338	ENTRY339	ENTRY340	ENTRY341	ENTRY342
SUBT1	ENTRY343	ENTRY344	ENTRY345	ENTRY346	ENTRY347	ENTRY348	ENTRY349	ENTRY350	ENTRY351
SUBT1	ENTRY352	ENTRY353	ENTRY354	ENTRY355	ENTRY356	ENTRY357	ENTRY358	ENTRY359	ENTRY360
SUBT1	ENTRY361	ENTRY362	ENTRY363	ENTRY364	ENTRY365	ENTRY366	ENTRY367	ENTRY368	ENTRY369
SUBT1	ENTRY370	ENTRY371	ENTRY372	ENTRY373	ENTRY374	ENTRY375	ENTRY376	ENTRY377	ENTRY378
SUBT1	ENTRY379	ENTRY380	ENTRY381	ENTRY382	ENTRY383	ENTRY384	ENTRY385	ENTRY386	ENTRY387
SUBT1	ENTRY388	ENTRY389	ENTRY390	ENTRY391	ENTRY392	ENTRY393	ENTRY394	ENTRY395	ENTRY396
SUBT1	ENTRY397	ENTRY398	ENTRY399	ENTRY400	ENTRY401	ENTRY402	ENTRY403	ENTRY404	ENTRY405
SUBT1	ENTRY406	ENTRY407	ENTRY408	ENTRY409	ENTRY410	ENTRY411	ENTRY412	ENTRY413	ENTRY414
SUBT1	ENTRY415	ENTRY416	ENTRY417	ENTRY418	ENTRY419	ENTRY420	ENTRY421	ENTRY422	ENTRY423
SUBT1	ENTRY424	ENTRY425	ENTRY426	ENTRY427	ENTRY428	ENTRY429	ENTRY430	ENTRY431	ENTRY432
SUBT1	ENTRY433	ENTRY434	ENTRY435	ENTRY436	ENTRY437	ENTRY438	ENTRY439	ENTRY440	ENTRY441
SUBT1	ENTRY442	ENTRY443	ENTRY444	ENTRY445	ENTRY446	ENTRY447	ENTRY448	ENTRY449	ENTRY450
SUBT1	ENTRY451	ENTRY452	ENTRY453	ENTRY454	ENTRY455	ENTRY456	ENTRY457	ENTRY458	ENTRY459
SUBT1	ENTRY460	ENTRY461	ENTRY462	ENTRY463	ENTRY464	ENTRY465	ENTRY466	ENTRY467	ENTRY468
SUBT1	ENTRY469	ENTRY470	ENTRY471	ENTRY472	ENTRY473	ENTRY474	ENTRY475	ENTRY476	ENTRY477
SUBT1	ENTRY478	ENTRY479	ENTRY480	ENTRY481	ENTRY482	ENTRY483	ENTRY484	ENTRY485	ENTRY486
SUBT1	ENTRY487	ENTRY488	ENTRY489	ENTRY490	ENTRY491	ENTRY492	ENTRY493	ENTRY494	ENTRY495
SUBT1	ENTRY496	ENTRY497	ENTRY498	ENTRY499	ENTRY500	ENTRY501	ENTRY502	ENTRY503	ENTRY504
SUBT1	ENTRY505	ENTRY506	ENTRY507	ENTRY508	ENTRY509	ENTRY510	ENTRY511	ENTRY512	ENTRY513
SUBT1	ENTRY514	ENTRY515	ENTRY516	ENTRY517	ENTRY518	ENTRY519	ENTRY520	ENTRY521	ENTRY522
SUBT1	ENTRY523	ENTRY524	ENTRY525	ENTRY526	ENTRY527	ENTRY528	ENTRY529	ENTRY530	ENTRY531
SUBT1	ENTRY532	ENTRY533	ENTRY534	ENTRY535	ENTRY536	ENTRY537	ENTRY538	ENTRY539	ENTRY540
SUBT1	ENTRY541	ENTRY542	ENTRY543	ENTRY544	ENTRY545	ENTRY546	ENTRY547	ENTRY548	ENTRY549
SUBT1	ENTRY550	ENTRY551	ENTRY552	ENTRY553	ENTRY554	ENTRY555	ENTRY556	ENTRY557	ENTRY558
SUBT1	ENTRY559	ENTRY560	ENTRY561	ENTRY562	ENTRY563	ENTRY564	ENTRY565	ENTRY566	ENTRY567
SUBT1	ENTRY568	ENTRY569	ENTRY570	ENTRY571	ENTRY572	ENTRY573	ENTRY574	ENTRY575	ENTRY576
SUBT1	ENTRY577	ENTRY578	ENTRY579	ENTRY580	ENTRY581	ENTRY582	ENTRY583	ENTRY584	ENTRY585
SUBT1	ENTRY586	ENTRY587	ENTRY588	ENTRY589	ENTRY590	ENTRY591	ENTRY592	ENTRY593	ENTRY594
SUBT1	ENTRY595	ENTRY596	ENTRY597	ENTRY598	ENTRY599	ENTRY600	ENTRY601	ENTRY602	ENTRY603
SUBT1	ENTRY604	ENTRY605	ENTRY606	ENTRY607	ENTRY608	ENTRY609	ENTRY610	ENTRY611	ENTRY612
SUBT1	ENTRY613	ENTRY614	ENTRY615	ENTRY616	ENTRY617	ENTRY618	ENTRY619	ENTRY620	ENTRY621
SUBT1	ENTRY622	ENTRY623	ENTRY624	ENTRY625	ENTRY626	ENTRY627	ENTRY628	ENTRY629	ENTRY630
SUBT1	ENTRY631	ENTRY632	ENTRY633	ENTRY634	ENTRY635	ENTRY636	ENTRY637	ENTRY638	ENTRY639
SUBT1	ENTRY640	ENTRY641	ENTRY642	ENTRY643	ENTRY644	ENTRY645	ENTRY646	ENTRY647	ENTRY648
SUBT1	ENTRY649	ENTRY650	ENTRY651	ENTRY652	ENTRY653	ENTRY654	ENTRY655	ENTRY656	ENTRY657
SUBT1	ENTRY658	ENTRY659	ENTRY660	ENTRY661	ENTRY662	ENTRY663	ENTRY664	ENTRY665	ENTRY666
SUBT1	ENTRY667	ENTRY668	ENTRY669	ENTRY670	ENTRY671	ENTRY672	ENTRY673	ENTRY674	ENTRY675
SUBT1	ENTRY676	ENTRY677	ENTRY678	ENTRY679	ENTRY680	ENTRY681	ENTRY682	ENTRY683	ENTRY684
SUBT1	ENTRY685	ENTRY686	ENTRY687	ENTRY688	ENTRY689	ENTRY690	ENTRY691	ENTRY692	ENTRY693
SUBT1	ENTRY694	ENTRY695	ENTRY696	ENTRY697	ENTRY698	ENTRY699	ENTRY700	ENTRY701	ENTRY702
SUBT1	ENTRY703	ENTRY704	ENTRY705	ENTRY706	ENTRY707	ENTRY708	ENTRY709	ENTRY710	ENTRY711
SUBT1	ENTRY712	ENTRY713	ENTRY714	ENTRY715	ENTRY716	ENTRY717	ENTRY718	ENTRY719	ENTRY720
SUBT1	ENTRY721	ENTRY722	ENTRY723	ENTRY724	ENTRY725	ENTRY726	ENTRY727	ENTRY728	ENTRY729
SUBT1	ENTRY730	ENTRY731	ENTRY732	ENTRY733	ENTRY734	ENTRY735	ENTRY736	ENTRY737	ENTRY738
SUBT1	ENTRY739	ENTRY740	ENTRY741	ENTRY742	ENTRY743	ENTRY744	ENTRY745	ENTRY746	ENTRY747
SUBT1	ENTRY748	ENTRY749	ENTRY750	ENTRY751	ENTRY752	ENTRY753	ENTRY754	ENTRY755	ENTRY756
SUBT1	ENTRY757	ENTRY758	ENTRY759	ENTRY760	ENTRY761	ENTRY762	ENTRY763	ENTRY764	ENTRY765
SUBT1	ENTRY766	ENTRY767	ENTRY768	ENTRY769	ENTRY770	ENTRY771	ENTRY772	ENTRY773	ENTRY774
SUBT1	ENTRY775	ENTRY776	ENTRY777	ENTRY778	ENTRY779	ENTRY780	ENTRY781	ENTRY782	ENTRY783
SUBT1	ENTRY784	ENTRY785	ENTRY786	ENTRY787	ENTRY788	ENTRY789	ENTRY790	ENTRY791	ENTRY792
SUBT1	ENTRY793	ENTRY794	ENTRY795	ENTRY796	ENTRY797	ENTRY798	ENTRY799	ENTRY800	ENTRY801
SUBT1	ENTRY802	ENTRY803	ENTRY804	ENTRY805	ENTRY806	ENTRY807	ENTRY808	ENTRY809	ENTRY810
SUBT1	ENTRY811	ENTRY812	ENTRY813	ENTRY814	ENTRY815	ENTRY816	ENTRY817	ENTRY818	ENTRY819
SUBT1	ENTRY820	ENTRY821	ENTRY822	ENTRY823	ENTRY824	ENTRY825	ENTRY826	ENTRY827	ENTRY828
SUBT1	ENTRY829	ENTRY830	ENTRY831	ENTRY832	ENTRY833	ENTRY834	ENTRY835	ENTRY836	ENTRY837
SUBT1	ENTRY838	ENTRY839	ENTRY840	ENTRY841	ENTRY842	ENTRY843	ENTRY844	ENTRY845	ENTRY846
SUBT1	ENTRY847	ENTRY848	ENTRY849	ENTRY850	ENTRY851	ENTRY852	ENTRY853	ENTRY854	ENTRY855
SUBT1	ENTRY856	ENTRY857	ENTRY858	ENTRY859	ENTRY860	ENTRY861	ENTRY862	ENTRY863	ENTRY864
SUBT1	ENTRY865	ENTRY866	ENTRY867	ENTRY868	ENTRY869	ENTRY870	ENTRY871	ENTRY872	ENTRY873
SUBT1	ENTRY874	ENTRY875	ENTRY876	ENTRY877	ENTRY878	ENTRY879	ENTRY880	ENTRY881	ENTRY882
SUBT1	ENTRY883	ENTRY884	ENTRY885	ENTRY886	ENTRY887	ENTRY888	ENTRY889	ENTRY890	ENTRY891
SUBT1	ENTRY892	ENTRY893	ENTRY894	ENTRY895	ENTRY896	ENTRY897	ENTRY898	ENTRY899	ENTRY900
SUBT1	ENTRY901	ENTRY902	ENTRY903	ENTRY904	ENTRY905	ENTRY9			

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PAGE 2		DATE 05/02/83 LIBRARY CROSS REFERENCE		TIME 07:36:43	
MODULE NAME	• • • •	SUMMARY F1 MODULES	• • • •	ATTRIBUTES	
SUBR12	98-LENGTH	1 ENTRY POINT: SAME AS MODULE			
		1 COMMAND:			
		1 EXTERNAL:			
SUBR13	98-LENGTH	1 ENTRY POINT: SAME AS MODULE			
		1 COMMAND:			
		1 EXTERNAL:			
SUBR14	98-LENGTH	1 ENTRY POINT: SAME AS MODULE			
		2 COMMANDS:			
		1 EXTERNAL:			
SUBR15	152-LENGTH	1 ENTRY POINT: SAME AS MODULE			
		2 COMMANDS:			
		3 ENTRY POINTS: ENTRY			
SUBR16	862-LENGTH	3 ENTRY POINTS: ENTRY			
		36 COMMANDS:			
		1 EXTERNAL:			
SUBR17	500-LENGTH	2 ENTRY POINTS: ENTRY			
		6 COMMANDS:	//		
		32 EXTERNALS:			
		ENTRYC	ENTRYD	ENTRYE	ENTRYF
		ENTRYK	ENTRYL	ENTRYM	ENTRYN
		ENTRYS	ENTRYT	ENTRYU	ENTRYV
		SUBR18	SUBR19	SUBR20	SUBR22
SUBR18	192-LENGTH	2 ENTRY POINTS: ENTRYC			
		7 COMMANDS:	//		
		3 EXTERNALS:			
SUBR19	360-LENGTH	2 ENTRY POINTS: ENTRYU			
		6 COMMANDS:	//		

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TIME 07 36 43

MOD NAME	SUMMARY BY MODULES	ATTRIBUTES
SUBRTO CONTINUED FROM PAGE 2		

	FUNCTION	FUNCTION	FUNCTION	FUNCTION
	ENTRYS	ENTRYS	ENTRYS	ENTRYS
SUBR16 182 LENGTH	2 EXTERNALS	2 EXTERNALS	2 EXTERNALS	2 EXTERNALS
	5 COMMANDS:	5 COMMANDS:	5 COMMANDS:	5 COMMANDS:
SUBR17 246 LENGTH	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:
	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:
SUBR18 142 LENGTH	3 COMMANDS:	3 COMMANDS:	3 COMMANDS:	3 COMMANDS:
	//	//	//	//
SUBR19 142 LENGTH	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:
	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:
SUBR20 142 LENGTH	4 COMMANDS:	4 COMMANDS:	4 COMMANDS:	4 COMMANDS:
	//	//	//	//
SUBR21 142 LENGTH	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:
	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:
SUBR22 197 LENGTH	4 COMMANDS:	4 COMMANDS:	4 COMMANDS:	4 COMMANDS:
	//	//	//	//
SUBR23 142 LENGTH	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:
	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:
SUBR24 138 LENGTH	4 COMMANDS:	4 COMMANDS:	4 COMMANDS:	4 COMMANDS:
	//	//	//	//
SUBR25 138 LENGTH	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:
	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:
SUBR26 192 LENGTH	3 COMMANDS:	3 COMMANDS:	3 COMMANDS:	3 COMMANDS:
	ACMADN	ACMADN	ACMADN	ACMADN
SUBR27 192 LENGTH	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:	2 EXTERNALS:
	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:	2 ENTRY POINTS:
SUBR28 192 LENGTH	2 COMMANDS:	2 COMMANDS:	2 COMMANDS:	2 COMMANDS:
	ACMADN	ACMADN	ACMADN	ACMADN
SUBR29 1 EXTERNAL	1 EXTERNAL:	1 EXTERNAL:	1 EXTERNAL:	1 EXTERNAL:
	SUBRTM	SUBRTM	SUBRTM	SUBRTM

MOD NAME	• • •	SUMMARY BY MODULES	• • •
SUBR1M	128-LENGTH	2 ENTRY POINTS: ENTR1M	SUBR1M
		2 COMMONS:	ACOMON
		1 EXTERNAL:	SUBR1M
SUBR1N	128-LENGTH	2 ENTRY POINTS: ENTR1N	SUBR1N
		2 COMMONS:	ACOMON
		1 EXTERNAL:	SUBR1N
SUBR1O	174-LENGTH	2 ENTRY POINTS: ENTR1O	SUBR1O
		2 COMMONS:	ACOMON
		1 EXTERNAL:	SUBR1P
SUBR1P	168-LENGTH	2 ENTRY POINTS: ENTR1P	SUBR1P
		1 COMMON:	ACOMON
		1 EXTERNAL:	SUBR1O
SUBR1Q	122-LENGTH	2 ENTRY POINTS: ENTR1Q	SUBR1Q
		1 COMMON:	ACOMON
		1 EXTERNAL:	SUBR1N
SUBR1R	168-LENGTH	2 ENTRY POINTS: ENTR1R	SUBR1R
		1 COMMON:	ACOMON
		1 EXTERNAL:	SUBR1S
SUBR1S	122-LENGTH	2 ENTRY POINTS: ENTR1S	SUBR1S
		1 COMMON:	ACOMON
		1 EXTERNAL:	SUBR1T
SUBR1T	122-LENGTH	2 ENTRY POINTS: ENTR1T	SUBR1T
		1 COMMON:	ACOMON
		1 EXTERNAL:	SUBR1V

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OF POOR QUALITY**

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MOD NAME	• • •	SUMMARY BY MODULES	• • •
ATTRIBUTES	•	ATTRIBUTES	•
SUBRTV 150-LENGTH	2 ENTRY POINTS	ENTRYV	SUBRTV
1 COMMON ACCORDIN			
SUBRTW 150-LENGTH	2 EXTERNALS	SUBRTW	SUBRTZ
SUBRTW			
SUBRTX 150-LENGTH	2 ENTRY POINTS	ENTRYW	SUBRTW
1 COMMON ACCORDIN			
SUBRTY 150-LENGTH	2 EXTERNALS	SUBRTX	SUBRTZ
SUBRTY			
SUBRTZ 150-LENGTH	2 ENTRY POINTS	ENTRYX	SUBRTK
1 COMMON ACCORDIN			
SUBRTK 122-LENGTH	2 EXTERNALS	SUBTY	SUBRTZ
SUBRTK			
SUBRTY 122-LENGTH	2 ENTRY POINTS	ENTRYV	SUBRTY
1 COMMON ACCORDIN			
SUBRTZ 150-LENGTH	1 EXTERNAL	SUBRTY	SUBRTZ
SUBRTZ			
SUBRTZ 150-LENGTH	2 ENTRY POINTS	ENTRYZ	SUBRTZ
1 COMMON ACCORDIN			
SUBRTW 150-LENGTH	2 EXTERNALS	ENTRYI	SUBRTG
SUBRTW			

PAGE 7 DATE 05/02/85 LIBRARY CTC : REFERENCE TIME 07 16:43

ENT PT • • • • • SUMMARY BY ENTRY POINTS • • • • •

REFERRING MODULE(S)

ENTRYH (SUBR1H)	1 MODULE:	SUBR1H		
ENTRYI (SUBR1I)	1 MODULE:	SUBR1I		
ENTRYJ (SUBR1J)	1 MODULE:	SUBR1J		
ENTRYK (SUBR1K)	1 MODULE:	SUBR1K		
ENTRYL (SUBR1L)	1 MODULE:	SUBR1L		
ENTRYM (SUBR1M)	1 MODULE:	SUBR1M		
ENTRYN (SUBR1N)	1 MODULE:	SUBR1N		
ENTRYO (SUBR1O)	1 MODULE:	SUBR1O		
ENTRYP (SUBR1P)	1 MODULE:	SUBR1P		
ENTRYQ (SUBR1Q)	1 MODULE:	SUBR1Q		
ENTRYR (SUBR1R)	1 MODULE:	SUBR1R		
ENTRYS (SUBR1S)	1 MODULE:	SUBR1S		
ENTRYT (SUBR1T)	1 MODULE:	SUBR1T		
ENTRYU (SUBR1U)	1 MODULE:	SUBR1U		
ENTRYV (SUBR1V)	1 MODULE:	SUBR1V		
ENTRYW (SUBR1W)	1 MODULE:	SUBR1W		
ENTRYX (SUBR1X)	1 MODULE:	SUBR1X		
ENTRYY (SUBR1Y)	1 MODULE:	SUBR1Y		
ENTRYZ (SUBR1Z)	1 MODULE:	SUBR1Z		
EVEOM1	1 MODULE:	SUBR1A		
KEYOM2	1 MODULE:	SUBR1A		
FUNC1MA	4 MODULES:	FUNC1MC	SUBR1A	SUBR1D
FUNC1NB	3 MODULES:	SUBR1B	SUBR1A	SUBR1D
FUNC1NC	1 MODULE:	SUBR1C		
SUBR16	4 MODULES:	SUBR1A	SUBR1B	SUBR1Z
SUBR11	3 MODULES:	SUBR1B	SUBR1A	SUBR1B
SUBR12	2 MODULES:	SUBR11	SUBR1A	

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* * * * * SUMMARY BY ENTRY POINTS * * * * *

ENT PT	REFERRING MODULE(S)	SUBR10	SUBR12	SUBR18	SUBR1A	SUBR1B	SUBR1D
SUBR1C		2 MODULES	SUBR12	SUBR18	SUBR1A	SUBR1B	SUBR1D
SUBR14		4 MODULES	SUBR13	SUBR1A	SUBR14	SUBR1A	
SUBR15		2 MODULES	SUBR14	SUBR1A	SUBR1A	SUBR1B	
SUBR18		1 MODULE	SUBR1A				
SUBR1C		1 MODULE	SUBR1B				
SUBR1D		2 MODULES	SUBR1B	SUBR1C	SUBR1C	SUBR1D	
SUBR1E		1 MODULE	SUBR1D				
SUBR1F		1 MODULE	SUBR1E				
SUBR1G		1 MODULE	SUBR1F				
SUBR1H		1 MODULE	SUBR1G				
SUBR1I		1 MODULE	SUBR1H				
SUBR1J		1 MODULE	SUBR1I				
SUBR1K		1 MODULE	SUBR1J				
SUBR1L		1 MODULE	SUBR1K				
SUBR1M		1 MODULE	SUBR1L				
SUBR1N		1 MODULE	SUBR1M				
SUBR1O		1 MODULE	SUBR1N				
SUBR1P		1 MODULE	SUBR1O				
SUBR1Q		1 MODULE	SUBR1P				
SUBR1R		1 MODULE	SUBR1Q				
SUBR1S		1 MODULE	SUBR1R				
SUBR1T		1 MODULE	SUBR1S				
SUBR1U		1 MODULE	SUBR1T				
SUBR1V		1 MODULE	SUBR1U				
SUBR1W		1 MODULE	SUBR1V				
SUBR1X		1 MODULE	SUBR1W				
SUBR1Y		1 MODULE	SUBR1X				
PLACE							0

ORIGINAL COPY
OF POOR QUALITY

DATE 05/02/03 LIBRARY CROSS REFERENCE TIME 07:36:43
 • • • • • SUMMARY BY ENTRY POINTS • • • • •
 REFERENCING MODULE(S)

ENTRY PT	SUBRTZ	SUBRTB	SUBRTV	SUBRTW	SUBRTX	SUBRTY
UNSA12 (UNSATISFIED)	5 MODULES	SUBRTA	SUBRTC	SUBRTA	SUBRTA	SUBRTA
UNSA1B (UNSATISFIED)	2 MODULES	SUBRTA	SUBRTC	SUBRTA	SUBRTA	SUBRTA
UNSA1C (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1D (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1E (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1F (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1G (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1H (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1I (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1J (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1K (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1L (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1M (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTA	SUBRTA	SUBRTA	SUBRTA
UNSA1N (UNSATISFIED)	1 MODULE	SUBRTA	SUBRTC	SUBRTA	SUBRTA	SUBRTA
UNSA1O (UNSATISFIED)	11 MODULES	SUBRTA	SUBRTC	SUBRTA	SUBRTA	SUBRTA

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COM NAME	• • • SUMMARY BY COM 100'S • • • MODULE(S) USING THE COMNAME
COMADNO	1 MODULE SUBR1A
COMADNP	1 MODULE SUBR1A
COMADNO	1 MODULE SUBR1A
COMADNP	1 MODULE SUBR1A
COMADNS	5 MODULES SUBR1A SUBR1B SUBR1C SUBR1D SUBR1E
COMADNT	1 MODULE SUBR1A
COMADNU	1 MODULE SUBR1A
COMADNV	1 MODULE SUBR1A
COMADNW	1 MODULE SUBR1A
COMADNT	1 MODULE SUBR1A
COMADNY	1 MODULE SUBR1A
COMADNZ	1 MODULE SUBR1A
WRT1COMA	5 MODULES FFCOM1 FFCOM2 SUBR1A SUBR1B

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* * * * * STATISTICS * * * * *

MODULES 43

ENTRY POINTS 81

COMMONS 34

UNSAT EXTERNALS 15

RELOCATABLE DIRECTORY LENGTH 59

WORDS REQUIRED TO LOAD ALL
RELOCATABLE MODULES IN THE
SELECTED LIBRARY

17444 OCTAL

TABLE OF CONTENTS

PAGE	SUBJECT
1	MODULES IN SELECTED LIBRARY
1	SUMMARY BY MODULES
6	ENTRY POINTS IN THE SELECTED LIBRARY
6	ENTRY POINTS NOT REFERENCED BY THIS LIBRARY
6	UNREFERENCED EXTERNALS
6	SUMMARY BY ENTRY POINTS
10	CONTENTS USED BY SELECTED LIBRARY
10	SUMMARY BY RECORDS
12	STATISTICS

DATE 05/02/85

TIME 07:50:13

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DATE 05/02/85

TIME 07:50:43

ELAPSED TIME 0 1248 SECONDS

APPENDIX B

SAMPLE PRINTOUT FORMATTED FOR CRT DISPLAY CROSSREF

Setup to format for a CRT and set up to include systems routines.

LIBRARY CROSS REFERENCE	DATE 05/02/85	TIME 07:54:16	LIBRARY CROSS REFERENCE
STARTRUN			STARTRUN
STARTRUP			STARTRUN
STARTRUN			STARTRUN
LIBRARY CROSS REFERENCE	DATE 05/02/85	TIME 07:54:16	LIBRARY CROSS REFERENCE

* * * * *
* THE LIBRARY CROSS REFERENCE SYSTEM WAS DEVELOPED FOR THE
* NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) AT
* AMES RESEARCH CENTER, MOFFETT FIELD, CALIFORNIA 94035.
* UNDER CONTRACT NUMBER: NAS2-9891.
*

* CRAY VERSION 1.0 RELEASE DATE: JUNE 1984
* * * * *

PAGE 1

DATE 05/02/35

LIBRARY CROSS REFERENCE TIME 07:54:16

* * THE FOLLOWING MODULES ARE NUMBERS OF THE SELECTED LIBRARY *

CFAA	DFFUN	EYEOH1	EYEOH2	FUNCTNA	FUNCTNB	FUNCTION	LNF
LF	RF	SUBRT	SUBRT0	SUBRT1	SUBRT2	SUBRT3	SUBRT4
SUBRT5	SUBRTA	SUBRTB	SUBRTC	SUBRTD	SUBRTF	SUBRTG	
SUBRTY	SUBRTI	SUBRTJ	SUBRTK	SUBRTL	SUBRTM	SUBRTN	SUBRTO
SUBRTP	SUBRTQ	SUBRTR	SUBRTT	SUBRTU	SUBRTV	SUBRTW	
SUBRTX	SUBRTY	SUBRTZ					

* * * * * SUMMARY BY MODULES * * * * *

MOD. NAME ATTRIBUTES

CFAA	76=LENGTH	1 ENTRY POINT:	SAME AS MODULE
DFFUN	76=LENGTH	1 ENTRY POINT:	SAME AS MODULE
EYEOH1	500+ LENGTH	1 ENTRY POINT:	SAME AS MODULE

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1 COMMON: WRITCOMA

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MOD. NAME

EYEOH1 CONTINUED FROM PAGE 1

13 EXTERNALS:	\$EOFW \$RFI \$RUF \$WB \$WFV%	\$REWF \$RFV% \$RUV% \$WFI	\$RB \$RFI \$RUI \$WFF	\$REWV
208 LENGTH	1 ENTRY POINT:	SAME AS MODULE		
EYEOH2	1 COMMON	WRITCOMA		
82 LENGTH	3 EXTERNALS:	\$CLS	\$OPN	\$WB
	1 ENTRY POINT:	SAME AS MODULE		

FUNCTION
PAGE 2

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* * * * * SUMMARY BY MODULES
ATTRIBUTES

MOD.	NAME	FUNCTION	ENTRY POINT	SAME AS MODULE	SQRT%
	96=LENGTH	1	EXTERNAL:	- - - - -	- - - - -
	154=LENGTH	1	ENTRY POINT:	SAME AS MODULE	- - - - -
	FUNCTNC	4	EXTERNALS:	EXP%	FUNCTION
				SQRT%	SIN%
INF	7E LENGTH	1	ENTRY POINT:	SAME AS MODULE	- - - - -
LF	76=LENGTH	1	ENTRY POINT:	SAME AS MODULE	- - - - -
RF	76=LENGTH	1	ENTRY POINT:	SAME AS MODULE	- - - - -

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MOD.	NAME	SUMMARY BY MODULES			
		ATTRIBUTES			
SUBRT	518-LENGTH	11	ENTRY POINTS:	ENTRY1 ENTRY3 ENTRY6 ENTRY8	ENTRY10 ENTRY4 ENTRY7 SUBRT
		1	COMMON:	ACOMMON	
		3	EXTERNALS:	FUNCTIONA	FUNCTIONB
SUBRTO	170-LENGTH	2	ENTRY POINTS:	ENTRY0	SUBRTO
		1	COMMON:	ACOMMON	
		3	EXTERNALS:	\$WFF	\$WFII
					SUBRTI

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• • • • •	• • • • •	• • • • •	• • • • •
MOD. NAME	SUMMARY BY MODULES	ATTRIBUTES	
SUBRT1	106-LENGTH	1 ENTRY POINT: SAME AS MODULE	
		5 COMMONS:	ACOMMON1 COMMON3 COMMON4
		1 EXTERNAL:	SUBRT2
SUBRT2	90-LENGTH	1 ENTRY POINT: SAME AS MODULE	
		1 COMMON:	ACOMMON
		1 EXTERNAL:	SUBRT3
SUBRT3	90-LENGTH	1 ENTRY POINT: SAME AS MODULE	
		1 COMMON:	ACOMMON

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MOD. NAME * * * * * SUMMARY BY MODULES * * * * *

ATTRIBUTES

SUBRT3 CONTINUED FROM PAGE 5

1 EXTERNAL: SUBRT4

SUBRT4 - - - - - 94-LENGTH 1 ENTRY POINT: SAME AS MODULE

2 COMMONS: ACOMMON COMMON4

1 EXTERNAL: SUBRT5

SUBRT5 - - - - - 152=LENGTH 1 ENTRY POINT: SAME AS MODULE

2 COMMONS: ACOMMON COMMON4

3 EXTERNALS: \$RFF \$RFI \$RFV%

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MOD. NAME		SUMMARY BY ATTRIBUTES		MODULES		ENTRYA		SUBRTA	
SUBRTA	862-LENGTH	3 ENTRY POINTS:	ENTRY	30 COMMONS:	//	ACOMMON	COMMONB	COMMONC	COMMON
				COMMONA	COMMOND	COMMONE	COMMONF	COMMONG	COMMONH
				COMMONJ	COMMONG	COMMONH	COMMONI	COMMONK	COMMONL
				COMMONM	COMMONN	COMMONO	COMMONP	COMMONQ	COMMONR
				COMMONS	COMMONT	COMMONU	COMMONV	COMMONW	COMMONX
				COMMONY	COMMONZ	COMMONY	WRITCOMA		
42 EXTERNALS:				\$RFF	\$RFV%	\$RFI			
				COS\$	ENTRY1	ENTRY2	ENTRY3	ENTRY4	ENTRY10
				ENTRY2					

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MOD. NAME

SUMMARY BY MODULES

• • •

ATTRIBUTES

SUBRTA CONTINUED FROM PAGE 7

ENTRY5	ENTRY6	ENTRY7
ENTRY8	ENTRY9	ENTRYB
EYEOH1	EYEOH2	FUNCINA
FUNCTIONB	SIN%	SUBRTO
SUBRT1	SUBRT2	SUBRT4
SJBRT5	SJBRTB	TAN%
UNSATA	UNSATB	UNSATC
UNSATD	UNSATE	UNSATF
UNSATG	UNSATH	UNSATI
UNSATJ	UNSATK	UNSATL
UNSATM	UNSATN	UNSATO
- - -	- - -	- - -
SUBRTB	580=LENGTH	2 ENTRY POINTS:
- - -	- - -	ENTRYB
- - -	- - -	SUBRTB
8 COMMONS:	//	ACOMMON
COMMONA		

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• • • • SUMMARY BY MODULES
MOD. NAME ATTRIBUTES

SUBRTB CONTINUED FROM PAGE 8

SUBRTB	CONTINUED FROM PAGE	COMMONB COMMONE	COMMONC COMMONE	COMMAND
37	EXTERNALS:	\$RFF COS% ENTRYE ENTRYH ENTRYK ENTRYL ENTRYN ENTRYQ ENTRYT ENTRYW ENTRYX ENTRYZ SUBRT1 SUBRT2 SUBRT3 SUBRTD	\$RFV% ENTRYD ENTRYG ENTRYI ENTRYM ENTRYP ENTRYO ENTRYR ENTRYU ENTRYV ENTRYX SIN% SUBRT0 SUBRT4 SUBRTZ	\$RFI ENTRYC ENTRYF ENTRYI ENTRYL ENTRYO ENTRYR ENTRYU ENTRYV ENTRYX SUBRT0 SUBRT3 SUBRTD

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MOD.	NAME	CONTINUED FROM PAGE	0	SUMMARY BY MODULES ATTRIBUTES
SUBRTC	192 LENGTH	2	UNSATO	ENTRY POINTS: ENTRYC SUBRTC
		7 COMMONS:	/	ACOMMON COMMONC COMMONS
		5 EXTERNALS:	COS%, UNSATO	SIN%, SUBRTD
SUBRTD	388 LENGTH	2	UNSATO	ENTRYD SUBRTD
		6 COMMONS:	/	ACOMMON COMMONB COMMONS

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NAME _____

SUBBTD CONTINUED FROM PAGE 10

SUMMARY BY ATTRIBUTES

SUMMARY BY MODULES . . . *

```

13 EXTERNALS:      $RFP%    $RFI    $RFV%
                  $WFP    $WF1    COS%
                  FUNCTNA   FUNCTNB  SIN%
                  SUBRTO   SUBRT4  SUBRTE
                  UNSATO

- - - - -          2 ENTRY POINTS:    ENTRYE   SUBRTE
- - - - -          5 COMMONS:        //COMMONB  ACOMMON
- - - - -          4 EXTERNALS:      COS%    SIN%
                                         UNSATO
                                         SUBKTF

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MOD.	NAME	• • • •	SUMMARY BY MODULES	• • • •	•
SUBRTF	240-LENGTH	2 ENTRY POINTS:	ENTRYF	SUBRTF	ACOMMON
		3 COMMONS:	//		COMMONA
		7 EXTERNALS:	\$RFF COS\$ UNSATO	\$RFV\$ SINS\$	SUBRTG
SUBRTG	142-LENGTH	2 ENTRY POINTS:	ENTRYG	SUBRTG	- - - - -
		4 COMMONS:	//		ACOMMON
		2 EXTERNALS:	SUBRTH	UNSAT()	COMMONA

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SUMMARY BY MODULES					
MOD.	NAME	ATTRIBUTES	ENTRY POINTS:	COMMONS	COMMON
SUBRTI	142=LENGTH	2	ENTRYH	SUBRTI	COMMON4
		4 COMMONS	// COMMONA		
		2 EXTERNALS:	SUBLT1	UNSAZO	
	192=LENGTH	2	ENTRY POINTS:	- - - - -	- - - - -
		4 COMMONS	// COMMONA	ACOMMON	COMMON4
		4 EXTERNALS:	\$WFF	\$VFI	SUBRTJ
			UNSAZO		

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MOD.	NAME	SUMMARY BY MODULES ATTRIBUTES	ENTRY POINTS:	ENTRYJ	SUBRTJ	COMMON	COMMON4
SUBRTJ	142=LENGTH	2					
		4 COMMONS:	//	COMMONA			
		2 EXTERNALS:	SUBRTK	UNSA TO			
SUBRTK	138=LENGTH	2	ENTRY POINTS:	ENTRYK	SUBRTK		
		3 COMMONS:		COMMON	COMMON4	COMMONA	
		2 EXTERNALS:	SUBRTL	UNSA TO			
SUBRTL	192=LENGTH	2	ENTRY POINTS:	ENTRYL	SUBRTL		
		2 COMMONS:		COMMON	COMMON4		

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MOD NAME SUMMARY BY MODULES
ATTRIBUTES

SURRTL CONTINUED FROM PAGE 14

	4 EXTERNALS:	\$RFF	\$RFI	\$RFV%
SUBRTM	126 LENGTH	2 ENTRY POINTS:	ENTRYM	SUBRTM
		2 COMMONS:	ACOMMON	COMMON4
		1 EXTERNAL:	SUBRTN	
SUBRTN	126 LENGTH	2 ENTRY POINTS:	ENTRYN	SUBRTN
		2 COMMONS:	ACMMCN	COMMON4
		1 EXTERNAL:	SUBRTO	

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MOD. NAME		SUMMARY BY MODULES		ATTRIBUTES	
SUBRTO	174-LENGTH	2 ENTRY POINTS:	ENTRYO	SUBRTO	COMMON ⁴
		2 COMMONS:	A COMMON		
		3 EXTERNALS:	\$WFF	\$WFI	SUBRTP
SUBRTP	188-LENGTH	2 ENTRY POINTS:	ENTRP	SUBRTP	
		1 COMMON:	A COMMON		
		1 EXTERNALS:	\$RFF	\$RFI	\$RFV%
			SUBRTQ		
SUBRTQ	122-LENGTH	2 ENTRY POINTS:	ENTRYQ	SUBRTQ	
		1 COMMON:	A COMMON		

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MOD. NAME

SUMMARY BY MODULES
ATTRIBUTES

SUBRTQ CONTINUED FROM PAGE 16

		1 EXTERNAL:	SUBRTR	- - - - -
	SUBRTT	188=LENGTH	2 ENTRY POINTS:	ENTRYR SUBRTT
43				
		1 COMMON:	ACOMMON	
		4 EXTERNALS:	\$RFI \$RFV%	
			SUBRTS	- - - - -
	SUBRTS	122=LENGTH	2 ENTRY POINTS:	ENTRYS SUBRTS
		1 COMMON:	ACOMMON	
		1 EXTERNAL:	SUBRTT	

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		SUMMARY BY MODULES			ATTRIBUTES	
MOD.	NAME	122-LENGTH	2 ENTRY POINTS:	ENTRYT	SUBRTT	
			1 COMMON:	ACOMMON		
			1 EXTERNAL:	SUBRTU		
			-----	-----	-----	-----
		122-LENGTH	2 ENTRY POINTS:	ENTRYU	SUBRTU	
			1 COMMON:	ACOMMON		
			1 EXTERNAL:	SUBRTV		
			-----	-----	-----	-----
		138-LENGTH	2 ENTRY POINTS:	ENTRYV	SUBRTV	
			1 COMMON:	ACOMMON		
			2 EXTERNALS:	SUBRTW	SUBRTZ	

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		SUMMARY BY MODULES	
		ATTRIBUTES	
MOD.	NAME	2 ENTRY POINTS:	ENTRYW
45	SUBRTW	130-LENGTH	SUBRTW
	SUBRTX	130-LENGTH	SUBRTZ
SUBRTY	122-LENGTH	SUBRTY	SUBRTY
	SUBRTZ	122-LENGTH	SUBRTZ

1 COMMON : ACOMMON

2 EXTERNALS : SUBRTX

2 ENTRY POINTS : ENTRYX

1 COMMON : ACOMMON

2 EXTERNALS : SUBRTY

2 ENTRY POINTS : ENTRYY

1 COMMON : ACOMMON

1 EXTERNAL : SUBRTZ

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* * * * * SUMMARY BY MODULES * * * * *
MOD. NAME ATTRIBUTES
SUBRTZ 130-LENGTH 2 ENTRY POINTS: ENTRY2 SUBRTZ
1 COMMON: ACOMMON
2 EXTERNALS: ENTR21 SUBRTO

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* * THE FOLLOWING ENTRY POINTS ARE MEMBERS OF THE SELECTED LIBRARY *

CFAA	DPPON	ENTRY	ENTRYO	ENTRY1	ENTRY10	ENTRY2	ENTRY3
	ENTRY4	ENTRY5	ENTRY6	ENTRY7	ENTRY8	ENTRY9	ENTRYB
	ENTRYC	ENTRYD	ENTRYE	ENTRYF	ENTRYG	ENTRYH	ENTRYI
	ENTRYK	ENTRYL	ENTRYM	ENTRYN	ENTRYO	ENTRYP	ENTRYJ
	ENTRYS	ENTRYT	ENTRYU	ENTRYV	ENTRYW	ENTRYX	ENTRYQ
	EYEOH1	EYEOH2	FUNCTIONA	FUNCTIONB	FUNCTIONC	INF	ENTRYZ
	SUBRT	SUBRT0	SUBRT1	SUBRT2	SUBRT3	SUBRT4	LF
	SUBRTB	SUBRTC	SUBRTD	SUBRTE	SUBRTF	SUBRTG	R.F.
	SUBRTJ	SUBRTK	SUBRTL	SUBRTM	SUBRTN	SUBRTO	SUBRTI
	SUBRTR	SUBRTS	SUBRTT	SUBRTU	SUBRTV	SUBRTW	SUBRTQ
							SUBRTY

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* * THE FOLLOWING ENTRY POINTS ARE NOT REFERENCED BY THIS LIBRARY* *

CPFAA	UPPFUN	ENTRY	ENTRY0	ENTRYA	INF	LF	RF
SUBRT	SUBRTA						

* * UNSATISFIED EXTERNALS REQUIRED BY MEMBERS OF THIS LIBRARY* *

UNSATI	UNSAT	UNSATC	UNSATD	UNSATE	UNSATF	UNSATG	UNSATH
UNSATI	UNSATJ	UNSATK	UNSATL	UNSATM	UNSATN	UNSATO	UNSATN

* * SUMMARY BY ENTRY POINTS AND EXTERNALS* *

ENT. PT. # EXTERNALS
REFERENCING MODULE(S)

\$CLS	(CRAY LIBRARY)	1 MODULE:	EYEOH2
\$EOFW	(CRAY LIBRARY)	1 MODULE:	EYEOH1

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ENT. PT. * SUMMARY BY ENTRY POINTS AND EXTERNALS *
& EXTERNALS REFERENCING MODULE(S)

\$OPN	(CRAY LIBRARY)	1 MODULE:	EYEOH2		
\$RB	(CRAY LIBRARY)	1 MODULE:	EYEOH1		
\$REWF	(CRAY LIBRARY)	1 MODULE:	EYEOH1		
\$RFF	(CRAY LIBRARY)	9 MODULES:	EYEOH1 SUBRTD SUBRTR	SUBRT5 SUBRTF	SUBRTA SUBRTL
\$RFI	(CRAY LIBRARY)	9 MODULES:	EYEOH1 SUBRTD SUBRTR	SUBRT5 SUBRTF	SUBRTB SUBRTL
\$RFV2	(CRAY LIBRARY)	9 MODULES:	EYEOH1 SUERTD	SUBRT5 SUBRTF	SUBRTA SUBRTL

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ENT. PT ' SUMMARY BY ENTRY POINTS AND EXTERNALS '
& EXTERNALS REFERENCING MODULE(S)

\$RFV4 CONTINUED FROM PAGE 23 SUBPTR
\$RUF (CRAY LIBRARY) 1 MODULE: EYEOH1
\$RUI (CRAY LIBRARY) 1 MODULE: EYEOH1
\$RUV* (CRAY LIBRARY) 1 MODULE: EYEOH1
\$WB (CRAY LIBRARY) 2 MODULES: EYEOH1 EYEOH2
\$WFF (CRAY LIBRARY) 5 MODULES: EYEOH1 SUBRTO SUBRTD SUBRTI
\$WFI (CRAY LIBRARY) 5 MODULES: EYEOH1 SUBRTO SUBRTD SUBRTI
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DATE 05/02/35

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TIME 07:54:16

ENT. PT. & EXTERNALS SUMMARY BY ENTRY POINTS AND EXTERNALS
REFERENCING MODULE(S)

3WFV%	(CRAY LIBRARY)	1 MODULE:	FYEOH1
COS%	(CRAY LIBRARY)	6 MODULES:	SUBRTA SUBRTE
ENTRY1 (SUBRT)		2 MODULES:	SUBRTA SUBRTF
ENTRY10 (SUBRT)		1 MODULE:	SUBRTA
ENTRY2 (SURRT)		1 MODULE:	SUBRTA
ENTRY3 (SUBRT)		1 MODULE:	SUBRTA
ENTRY4 (SUBRT)		1 MODULE:	SUBRTA
ENTRY5 (SUBRT)		1 MODULE:	SUBRTA

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' *SUMMARY BY ENTRY POINTS AND EXTERNALS*
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

ENTRY6 (SUBRT)	1 MODULE: SUBRTA
ENTRY7 (SUBRT)	1 MODULE: SUBRTA
ENTRY8 (SUBRT)	1 MODULE: SUBRTA
ENTRY9 (SUBRT)	1 MODULE: SUBRTA
ENTRYB (SUBRTB)	1 MODULE: SUBRTA
ENTRYC (SUBRTC)	1 MODULE: SUBRTB
ENTRYD (SUBRTD)	1 MODULE: SUBRTB
ENTRYE (SUBRTE)	1 MODULE: SUBRTB

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' 'SUMMARY BY ENTRY POINTS AND EXTERNALS'
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

ENTRYF (SUBRTF)	1 MODULE:	SUBRTB
ENTRYG (SUBRTG)	1 MODULE:	SUBRTB
ENTRYH (SUBRTH)	1 MODULE:	SUBRTB
ENTRYI (SUBRTI)	1 MODULE:	SUBRTB
ENTRYJ (SUBRTJ)	1 MODULE:	SUBRTB
ENTRYK (SUBRTK)	1 MODULE:	SUBRTB
ENTRYL (SUBRTL)	1 MODULE:	SUBRTB
ENTRYM (SUBRTM)	1 MODULE:	SUBRTB

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' *SUMMARY BY ENTRY POINTS AND EXTERNALS*
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

ENTRYN (SUBRTN)	1 MODULE:	SUPERTB
ENTRYO (SUBRTO)	1 MODULE:	SUBRTB
ENTRYP (SUBRTP)	1 MODULE:	SUBRTB
ENTRYQ (SUBRTQ)	1 MODULE:	SUBRTB
ENTRYR (SUBRTR)	1 MODULE:	SUBRTB
ENTRYS (SUBRTS)	1 MODULE:	SUBRTB
ENTRYT (SUBRTT)	1 MODULE:	SUBRTB
ENTRYU (SUBRTU)	1 MODULE:	SUBRTB

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

ENTRYV (SUBRTV)	1 MODULE: SUBRTB
ENTRYW (SUBRTW)	1 MODULE: SUBRTB
ENTRYX (SUBRTX)	1 MODULE: SUBRTB
ENTRYY (SUBRTY)	1 MODULE: SUBRTB
ENTRYZ (SUBRTZ)	1 MODULE: SUBRTB
EXP% (CRAY LIBRARY)	1 MODULE: FUNCTNC
EYEON1	1 MODULE: SUBRTA
EYEON2	1 MODULE: SUBRTA

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* SUMMARY BY ENTRY POINTS AND EXTERNALS *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

FUNCTIONA	4 MODULES:	FUNCTIONC	SUBRT	SUBRTA	SUBRTD
FUNCTIONB	3 MODULES:	SUBRT	SUBRTA	SUBRTD	
FUNCTIONC	1 MODULE:	SUBRT			
SIN% (CRAY LIBRARY)	7 MODULES:	FUNCTIONC	SUBRTA	SUBRTB	SUBRTC
SQRT%	(CRAY LIBRARY)	2 MODULES:	FUNCTIONB	SUBRTB	SUBRTF
SUBRT0	4 MODULES:	SUBRTA	FUNCTIONC		
SUBRT1	3 MODULES:	SUBRT0	SUBRTA	SUBRTD	SUBRT1'2
SUBRT2	2 MODULES:	SUBRT1	SUBRTA		
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' * SUMMARY BY ENTRY POINTS AND EXTERNALS' *

ENT. PT. & EXTERNALS REFERENCING MODULE(S)

SUBRT3	2 MODULES:	SUBRT2	SUBRTB		
SUBRT4	4 MODULES:	SUBRT3	SUBRTA	SUBRTB	SUBRTD
SUBRT5	2 MODULES:	SUBRT4	SUBRTA		
SUBRT6	1 MODULE:	SUBRTA			
SUBRTC	1 MODULE:	SUBRTB			
SUBRTD	2 MODULES:	SUBRTB	SUBRTC		
SUBRTF	1 MODULE:	SUBRTD			
PAGE 31	1 MODULE:	SUBRTF			

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TIME 07:54:16
INT. PT. & EXTERNALS
• SUMMARY BY ENTRY POINTS AND EXTERNALS •
REFERENCING MODULE(S)

SUBPTG	1 MODULE: SUBRTF
SUBRTH	1 MODULE: SUBRTG
SUBRTI	1 MODULE: SUBRTH
SUBRTJ	1 MODULE: SUBRTI
SUBRTK	1 MODULE: SUBRTJ
SUBRTL	1 MODULE: SUBRTK
SUBRTM	1 MODULE: SUBRTL
SUBRTN	1 MODULE: SUBRTM

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

SUBRTO	1 MODULE: SUBRTN
SUBRTP	1 MODULE: SUBRTO
SUBRTQ	1 MODULE: SUBRTP
SUBRTR	1 MODULE: SUBRTQ
SUBRTS	1 MODULE: SUBRTR
SUBRTT	1 MODULE: SUBRTS
SUBRTU	1 MODULE: SUBRTT
SUBRTV	1 MODULE: SUBKTU
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* * SUMMARY BY ENTRY POINTS AND EXTERNALS *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

SUBRTW	1 MODULE:	SUBRTV
SUBRTX	1 MODULE:	SUBRTW
SUBRTY	1 MODULE:	SUBRTX
SUBRTZ	5 MODULES:	SUBRTB SUBRTY
TAN%	(CRAY LIBRARY)	1 MODULE: SUBRTA
UNSAT A (UNSATISFIED)	2 MODULES:	SUBRTA SUBRTC
UNSAT B (UNSATISFIED)	1 MODULE:	SUBRTA
UNSAT C (UNSATISFIED)	1 MODULE:	SUBRTA

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

UNSATD	(UNSATISFIED)	1	MODULE:	SUBRTA
UNSAT E	(UNSATISFIED)	1	MODULE:	SUBRTA
UNSAT F	(UNSATISFIED)	1	MODULE:	SUFRTA
UNSAT G	(UNSATISFIED)	1	MODULE:	SUBRTA
UNSAT H	(UNSATISFIED)	1	MODULE:	SUBRTA
UNSAT I	(UNSATISFIED)	1	MODULE:	SUBRTA
UNSAT J	(UNSATISFIED)	1	MODULE:	SUBRTA
UNSAT K	(UNSATISFIED)	1	MODULE:	SURRTA

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

UNSATI	(UNSATISFIED)	1 MODULE:	SUBRTA
UNSATM	(UNSATISFIED)	1 MODULE:	SUBRTA
UNSATN	(UNSATISFIED)	1 MODULE:	SUBRTA
UNSATO	(UNSATISFIED)	11 MODULES:	SUBRTB SUBRTF SUBRTI
			SUBRTC SUBRTG SUBRTK

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* * COMMONS APPEARING IN THIS LIBRARY * *

// ACOMMON COMMON COMMON1 COMMON2 COMMON3 COMMON4
COMMONB COMMONC COMMOND COMMONF COMMONG COMMONH COMMONI
COMMONJ COMMONK COMMONL COMMONM COMMONN COMMONP COMMONQ
COMMONR COMMONS COMMONT COMMONU COMMONV COMMONW COMMONX
COMMONZ WRITCOMMONA

* * * * * SUMMARY BY COMMONS * * * * *
COM. NAME MODULE(S) USING THE COMMON

// 10 MODULES: SUBRTA SUBRTB SUBRTC SUBRTD
SUBRTB SUBRTF SUBRTG SUBRTH
SUBRTI SUBRTJ

33 MODULES: SUBRT SUBRTO SUBRT1 SUBRT2
SUBRT3 SUBRT3 SUBRT4 SUBRT5
SUBRTB SUBRTB SUBRTC SUBRTD SUBRT6

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COMMON NAME

ACOMMON CONTINUED FROM PAGE 37

SUBRTF	SUBRTG	SUBRTH	SUBRTI
SUBRTJ	SUBRTK	SUBRTL	SUBRTM
SUBRTN	SUBRTO	SUBRTP	SUBRTQ
SUBRTR	SUBRTS	SUBRTT	SUBRTU
SUBRTV	SUBRTW	SUBRTX	SUBRTY
SUBRTZ			

COMMON

] MODULE: SUBRTA

COMMON1

1 MODULE: SUBRT1

COMMON2

1 MODULE: SUBRT1

COMMON3

2 MODULE: SUBRT1

COMMON4

12 MODULES: SUBRT1	SUBRT4	SUBRT5	SUBRTG
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LIBRARY CROSS REFERENCE
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COM.	NAME	CONTINUED FROM	PAGE	SUBRTI	SUBRTJ	SUBRTK	SUBRT
COMMONA		38		SUBRTI	SUBRTM	SUBRTN	SUBRT
				SUBRTL			
	21 MODULES:			SUBRTA	SUBRTB	SUBRTC	SUBRTD
				SUBRTE	SUBRTF	SUBRTG	SUBRTH
				SUBRTI	SUBRTJ	SUBRTK	
COMMONB		5 MODULES:		SUBRTA	SUBRTB	SUBRTC	SUBRTD
				SUBRTE			
COMMONC		3 MODULES:		SUBRTA	SUBRTB	SUBRTC	
COMMOND		3 MODULES:		SUBRTA	SUBRTB	SUBRTC	
COMMONE		2 MODULES:		SUBRTA	SUBRTB		
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COM. NAME

COMMONF

COMMONG

COMMONH

COMMONI

COMMONJ

COMMONK

COMMONL

COMMONM

COMMONN
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• • • • • SUMMARY BY COMMONS
• • • • • MODULE(S) USING THE COMMONS
1 MODULE: SUBRTA
1 MODULE: SUBRTA

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COM.	NAME	SUMMARY BY COMMONS MODULE(S) USING THE COMMON		
COMMONO		1 MODULE:	SUBRTA	
COMMONP		1 MODULE:	SUBRTA	
COMMONQ		1 MODULE:	SUBRTA	
COMMONR		1 MODULE:	SUBRTA	
COMMONS		5 MODULES:	SUBRTA SUBRTF	SUBRTB SUBRTC SUBRTD
COMMONT		1 MODULE:	SUBRTA	
COMMONU		1 MODULE:	SUBRTA	
COMMONV		1 MODULE:	SUBRTA	
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CON. NAME SUMMARY BY COMMONS
COMMONW MODULE(S) USING THE COMMON
COMMONX
COMMONY
COMMONZ
WRITCOMA

1 MODULE: SUBRTA
1 MODULE: SUBRTA
1 MODULE: SUBRTA
1 MODULE: SUBRTA
4 MODULES: EYEOH1 EYEOH2 SUBRTA SUBRTD

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* * * * STATISTICS * * * *

MODULES	43
ENTRY POINTS	81
COMMONS	34
UNSAT. EXTERNALS	15
RELOCATABLE DIRECTORY LENGTH	583
WORDS REQUIRED TO LOAD ALL RELOCATABLE MODULES IN THE SELECTED LIBRARY	7972 DECIMAL 17444 OCTAL

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TABLE OF CONTENTS

PAGE	SUBJECT
1	MODULES IN SELECTED LIBRARY
1	SUMMARY BY MODULES
21	ENTRY POINTS IN THE SELECTED LIBRARY
22	ENTRY POINTS NOT REFERENCED BY THIS LIBRARY
22	UNSATISFIED EXTERNALS
22	SUMMARY BY ENTRY POINTS AND EXTERNAL
37	COMMONS USED BY SELECTED LIBRARY
37	SUMMARY BY COMMONS
43	STATISTICS

APPENDIX C

Logfile of CROSSREF when set up to include systems routine and to format output to a CRT display.

OF POOR QUARTERS

1 Report No. NASA CR- 177384	2. Government Acquisition No.	3. Recipient's Catalog No.	
4. Title and Subtitle Crossref for the Cray		5. Report Date November 1985	
6. Author(s) Clayton J. Guest		7. Performing Organization Code	
8. Performing Organization Name and Address Informatics General Corporation 1121 San Antonio Road Palo Alto, CA 94303		9. Performing Organization Report No. TN 84-7104-101-12	
10. Work Unit No K1707		11. Contract or Grant No. NAS2-11555	
12. Sponsoring Agency Name and Address National Aeronautics and Space Administration Washington, D.C. 20546		13. Type of Report and Period Covered Contractor Report	
14. Sponsoring Agency Code 999-33-02			
15. Supplementary Notes Robert A. Carlson (415) 694-6036 Point of Contact: MS: 233-15 FTS 448-6036 Ames Research Center Moffett Field, CA 94035			
16. Abstract Crossref for the Cray is a tool used to obtain information about the contents of a library generated with a BUILD statement under COS. It produces a list of all modules in the library; a summary table by modules containing module size, ENTRY POINTS, referenced COMMONs, and required EXTERNALs; a list of unsatisfied EXTERNALs; a summary table of ENTRY POINTS and optionally EXTERNALs; a list of COMMONs; a table of statistics and a table of contents. The output can be formatted to 8 1/2 inch vertical paper or CRT display.			
17. Key Words (Suggested by Author(s)) Alphabetized library listing, Cray cross reference, software tool		18. Distribution Statement Unclassified, unlimited Star Category - 61	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 73	22. Price*